

REMARKS

This Amendment is submitted in response to the Office Action mailed on June 29, 2005.

In the Office Action, claims 1, 3-11, and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Perrine (U.S. Patent No. 5,716,432) in view of Cullen et al (U.S. Patent No. 4,772,300).

The Examiner referred to Perrine as disclosing, "a method of fabricating a desiccant container 10. This method involves providing cup 14 and cap 16 made of a high-density material such as polypropylene. A membrane comprising plies 74 and 76 is ultrasonically welded to the cup and cap. Cup 14 includes annular shaped portions 86, 88, 90 and 92 which function as energy directors in the manner claimed." The Examiner goes on to state that Perrine does not disclose the low-density membrane of spun bonded plastics, however, Cullen discloses an absorbent cartridge that employs a low density spun bonded polyolefin membrane.

With this Amendment, independent claim 1 has been amended to further clarify the invention. The phrase, "characterized by providing one of the separate parts with," has been deleted and now reads, "wherein one of the separate parts is provided with."

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found in either the references themselves or in the knowledge generally available to one of ordinary skill in the art. M.P.E.P. 2143.01, citing In re Fine, 5 USPQ2d 1596 (CAFC 1988) and In re Jones, 21 USPQ 1941 (CAFC 1992). In addition, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

All of the claims are rejected as being unpatentable over Perrine in view of Cullen. In particular, the Examiner contends that it would be obvious to employ a low density spun bonded polyolefin membrane as disclosed by Cullen in place of the membrane disclosed by Perrine to arrive at the claimed invention. The Applicant does not accept that it would be obvious to combine the cited documents in the

manner suggested by the Examiner. Furthermore, even if the documents are combined as suggested by the Examiner (and such combination is not admitted to be obvious), the resulting combination still does not teach a method having all the elements recited in claim 1.

The present invention concerns a method of constructing a desiccant pot by trapping a membrane between the pot lid and pot body. More specifically, the marginal edge of a low density membrane of spun bonded plastics is ultrasonically welded between opposed surfaces of the pot body and pot lid.

The inventors discovered that the presence of such a low density membrane between the body and lid affects the efficiency of ultrasonic welding. In particular, the inventors found that the low density membrane impaired the effective transmission of vibrations at the interface to create the friction necessary for the plastics of the lid and body to melt and fuse together when ultrasonic welding the lid and body together.

Furthermore, the inventors discovered that when ultrasonic welding opposed flat surfaces of the lid and body, the temperatures produced at the interface were much higher than required to weld the lid and body together and the spun bonded plastics of the low density membrane was susceptible to damage on exposure to these higher temperatures. In particular being extremely thin, typically 0.15mm thick, the performance of the membrane is impaired and in some cases the membrane can be destroyed by the application of too much heat during the welding process.

Also, the inventors found that Tyvek (one of the preferred materials for the membrane) is adversely affected by high temperatures, causing it to shrivel. Exposure to temperatures in excess of 125 degrees centigrade can render Tyvek useless as a permeable membrane because the matrix that provides the permeability melts, collapses and congeals into a solid, impermeable structure.

The present invention is based on the discovery by the inventors that ultrasonic welding of the lid and body with a low density membrane trapped there between can be enhanced if the membrane is locally compressed to increase its density. In this way, the compressed area of the membrane takes on

the characteristics of a high density plastic and can transmit more efficiently the vibrations at the interface that cause the friction for the plastics of the lid and body to melt and fuse together.

This localized compression of the membranes is achieved by providing one of the opposed surfaces of the lid and body with a fine protuberance which spaces the surfaces apart so that, on pressing the lid and body together, the protuberance applies a high load to the membrane that locally compresses the spun bonded plastics. This caused the micro spaces to collapse filling the voids with solid material compressed into the previously empty space so that the density of the membrane is significantly increased at the point where it is compressed by the protuberance.

As a result, the membrane can transmit the vibrations generated during ultrasonic welding more efficiently, reducing the welding time and preventing excessive temperatures being produced at the interface. In this way, damage to or destruction of the membrane can be significantly reduced or eliminated altogether.

A further benefit arising from the use of a fine protuberance to compress the membrane is that the protuberance can also act as an energy director for the ultrasonic welding which further contributes to the efficiency of the ultrasonic welding process by reducing the welding time and temperatures arising at the interface.

Claim 1 includes the features of the inventive method that produce the benefits and advantages discussed above. In particular, claim 1 includes the steps of:

Providing one of the two separate parts with a fine protuberance in the form of one or more ridges or points extending from its touching surface towards the touching surface of the other separate part **to space the touching surfaces slightly apart;**

pressing the two parts together with the membrane trapped between the touching surfaces so that **the membrane is compressed at the point of contact with the protuberance thereby increasing its density at the point;**

such that, at the time of ultrasonic welding, the protuberance acts as an energy directing protrusion, and the ultrasonic vibrations pass from the protuberance on the one part through the membrane **at the point where it is compressed to increase its density** to the other part.

Perrine discloses attaching a permeable membrane to a flange at the base of the pot by ultrasonic welding and attaching another permeable membrane to a flange on the underside of the lid by ultrasonic welding. Column 5, lines 1-15. The lid is then secured to the open end of the pot by push fit. Column 5, lines 15-26.

There is no disclosure in Perrine of a method in which the membrane is trapped between opposed surfaces of the lid and body **prior to ultrasonically welding** the lid to the body. There is also no disclosure in Perrine of a protuberance **to compress the membrane** so that the ultrasonic welding is enhanced.

Cullen discloses attaching a permeable membrane to each end of a tubular body by ultrasonic welding. Column 2, lines 39-54. Cullen, however, fails to disclose trapping the membrane between the body and a lid of a pot. Furthermore, there is no teaching, suggestion, or motivation provided by Cullen that ultrasonic welding of a lid to the body can even be enhanced by **locally compressing the membrane**.

Therefore, Perrine in view of Cullen does not teach, motivate, or suggest to someone of ordinary skill in the art to form a pot by ultrasonically welding a lid to a body with a low density membrane of spun bonded plastics trapped in between and, absolutely no suggestion of a solution to the problems faced by the present inventors. Because the combination of Perrine and Cullen fails to disclose or suggest all of the elements recited in claim 1, the obviousness rejection of claim 1 should be withdrawn. It is respectfully submitted that claims 3-11 and 15 are further allowable since they depend from a patentable independent claim. See M.P.E.P. 2143.03, citing In re Fine, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988).

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Application No.: 10/511,953


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Claims 1, 3-11 and 15 are in a form for allowance and a notice to that effect is respectfully requested. The Examiner is invited to contact the undersigned at the telephone number listed below, if such a call would in any way facilitate the allowance of this application.

Respectfully submitted,

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